REMARKS

Claim Rejections Under 35 U.S.C. 112

Claims 21-29 are rejected under 35 USC 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Applicant asserts that a computer readable storage medium such as a CD-ROM is well understood by those of skill in the art and that the claims as they presently stand include full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same.

Computerized storage mediums such as the data stores 304 are disclosed in the specification. Also, it is clear that the system 300 of Figure 3 may be embodied within a computer. As such, the modules therein, which may be computer software, must be stored somewhere. Standard manners of storing computerized data are well known in the art. These include RAM memory, ROM memory, CD-ROMs, DVDs, etc. That the modules may contain computer software is made clear in the specification at page 11, lines 2 – 22. Note that at lines 20 through 22, it clearly states that operational data may be stored on storage devices.

Claim Rejections Under 35 U.S.C. 101

Claims 1-13 and 18-29 are rejected under 35 U.S.C 101 for being directed to non-statutory subject matter. Specifically, independent claims 1, 12, and 14 were rejected for "merely claiming nonfunctional descriptive material, ie, abstract ideas" while independent claims 1, 12, 14, 16, 18, and 21 were also rejected for "claiming software per se".

Applicants take exception to the characterization of the claims as merely describing non-functional descriptive material such as software particularly since logical and operational statements that are used to implement software embodiments of modules may also be used to implement hardware implementations of modules (see Applicant's definition of modules in the first three paragraphs of the "Detailed Description of the Invention" section of the specification).

Furthermore, it is common knowledge that no software can be executed without hardware and a suggestion that software embodiments are ethereal and non-tangible is counter to the experience of any reasonable person. Applicant also asserts that the characterization of software as unpatentable is not in line with the findings of the courts. Additionally, the claims as originally presented do include concrete steps, such as "storing data on a hierarchically-indexed data store."

Nevertheless, in order to expedite prosecution, Applicant has elected to make several amendments to overcome the foregoing rejections. For example, claim 1 has been rewritten to include "a computing device for data replication," creating a non-abstract implementation of the present invention. Claim 14 has also been rewritten to state that changed file regions are communicated "to a replication data store" in order to define a concrete location for data modifications to be implemented.

Claim Rejections Under 35 U.S.C. 102

Claims 9-10 were rejected under 35 U.S.C. 102(e) as anticipated by Federwisch et al. U.S. Patent Number 7,039,663 (hereinafter "Federwisch"). Lines 4-7 of column 10 were cited.

In light of the rejections, a review of the present invention may help clarify the novelty of Applicants' claims over the references under consideration. A modified version of claim 1 states that the invention includes "a file system driver configured to access the data store and track file regions that have changed since a first point-in-time image replication instance". A modified version of claim 10 further clarifies one embodiment of the invention by stating that "the file system driver is an installable driver".

Applicant respectfully submits that Federwisch fails to anticipate the present driver implementation as claimed by the Applicant. Specifically, Federwisch does not disclose a tracking module that is a file system driver. The only drivers that Federwisch mentions are network drivers useful only for transferring packets.

For example, column 10 lines 4-7 of Federwisch states that "The exemplary storage operating system 400 comprises a series of software layers, including a media access layer 405 of network drivers (e.g., an Ethernet driver)." Applicant submits that network drivers do not have the necessary functionality required of a file system driver such as access to particular file regions. Furthermore, Federwisch does not specifically mention an installable file system driver. Rather, Federwisch simply interfaces with conventional communication drivers.

In order to clarify that the tracking module of present invention may be embodied in a file system driver, claim 1 has been rewritten to read "a file system driver configured to <u>access the data store and</u> track file regions that have changed since a first point-in-time image replication instance". Claim 10 has also been amended to define the file system driver in claim 1 as an 'installable' file system driver. Furthermore, claim 14 has been modified to clarify that a file system driver is used in the process of tracking changed file regions. Claims 16, 18, and 21 have

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been similarly altered. Claim 30 now reflects that the file system driver contains a change tracking data structure used in the process of tracking changed file regions.

Applicant notes that using a file system driver to track changes enables the present invention to be deployed in existing systems in some instances without changing the underlying hardware.

Applicant would also like to note that the present invention utilizes a point in time replication system that retains references to old, unchanged data blocks. Unlike Federwisch, when a data block does not change, the data block is not reclaimed for over-writing in the present invention. By copying the root block with references to unchanged data, the present invention entails a more efficient and lightweight point in time restoration system than the invention presented by Federwisch. Furthermore, Federwisch would necessarily utilize more resources in order to maintain a series of complete updated snapshots instead of utilizing a snapshot of the root. To focus on these distinctions, claim 11 has been modified to state that the point-in-time image replication comprises "a snapshot of the root node" and thereby clarify that the root node may be reused to reduce replication overhead.

CONCLUSION

In view of the foregoing remarks, Applicants respectfully assert that modified claims are in condition for prompt allowance. Should additional information or evidence be required, the Examiner is respectfully asked to notify Applicants of such need. If any impediments to the prompt allowance of the claims can be resolved by a telephone conversation, the Examiner is respectfully requested to contact the undersigned.

Respectfully submitted,

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Kunzler & Associates   Brian C. Kunzler
8 E. Broadway, Suite 600   Reg. No. 38,527
Salt Lake City, Utah 84111   Attorney for Applicant
Telephone: 801/994-4646